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10/698,212	10/31/2003	Sunay Tripathi	20910/0206210-US0	1500

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EXAMINER	
TIV, BACKHEAN	

ART UNIT	PAPER NUMBER
2451	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/698,212	TRIPATHI ET AL.	
	Examiner	Art Unit	
	BACKHEAN TIV	2451	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/2/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,9-11,13,17,19,24-26,28,30-33,36-38,40,45,47,52-54 and 56-58* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9-11,13,17,19,24-26,28,30-33,36-38,40,45,47,52-54 and 56-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 6-8,12,14-16,18,20-23,27,29,34,35,39,41-44,46,48-51 and 55.

Detailed Action

Claims 1-5, 9-11,13,17,19, 24-26, 28, 30-33, 36-38, 40, 45, 47, 52-54,56-58 are pending in this application. Claims 6-8,12,14-16,18,20-23,27,29,34,35,39,41-44,46,48-51,55 have been cancelled. This is a response to the Amendments/Remarks filed on 10/02/08. This action is made **Final.**

Claim Objections

Claims 1-6, 9-11,13,17,19, 24-26, 28, 30-33, 36-38, 40, 45, 47, 52-54,56-58 are objected to because of the following informalities:

As per claims 1,30,31,32 recites, "*wherein after the hardware network protocol stack accepts transfer of the network connection the software network protocol stack is configured to continually reference hardware-level connection state information and the hardware network protocol stack is configured to continually reference kernel-level connection state information and socket layer-level connection state information*", there should be a comma after "the network connection" to read as, "*wherein after the hardware network protocol stack accepts transfer of the* ***network connection, the software*** *network protocol stack is configured to continually reference hardware-level connection state information and the hardware network protocol stack is configured to continually reference kernel-level connection state information and socket layer-level connection state information*".

All dependant claims are objected to based on the same rationale as set forth above.

As per claims 52-54, depends on cancelled claim 50. For examination purposes, the Office will assume claims 52-54 depends on claim 32.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 9-11,13,17,19, 24-26, 28, 30-33, 36-38, 40, 45, 47, 52-54,56-58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As per claims 1, 30,31,32, recites the limitation, "wherein after the hardware network protocol stack accepts transfer of the network connection the **software network protocol stack is configured to continually reference hardware-level connection** state information and the **hardware network protocol stack is configured to continually reference kernel-level connection state information and socket layer-level connection state information"**.

The applicant has cited, pages 14-19 of the specification and Figs.2-5 as supporting the amendments, however, the cited portions of the specification discusses offloading from a software protocol stack to a hardware protocol stack, however

nowhere does the specification recites, "**continually reference** hardware-level connection" or "**continually reference** kernel-level connection state information and socket-layer-level connection state information".

The Office did a text search of the specification but could not find "continually reference" or it's synonyms.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,3,4,29,30,31,32,33 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,3,4,14,15,30,46,47 of copending Application No. 10/698,168 in view of US Publication 2004/0064589 issued to Boucher et al.(Boucher)

Claims 1,3,4,14,15,30,46,47 of Copending Application No.10/698,168 teaches all the limitations of claims 1,3,4,29,30,31,32,33 of the present application except for kernel-level connection state information for the network connection.

Boucher teaches kernel-level connection state information for the network connection(para.0430-0431).

Therefore it would have been obvious to one ordinary skill in the art at the time of the invention to modify the teachings of co-pending application 10/698,168 to include kernel-level connection state information for the network connection as taught by Boucher in order to increase the speed of processing and the efficiency of transferring data being communicated(Boucher, para.0016).

One ordinary skill in the art would have been motivated to combine the teachings of copending application 10/698,168 and Boucher in order to increase the speed of processing and the efficiency of transferring data being communicated(Boucher, para.0016).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim1-5, 9-11,13,17,19, 24, 28, 30-33, 36-38, 40, 45, 47, 52,56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2004/0064589 issued to Boucher et al.(Boucher) in view of US Patent 6,697,868 issued to Craft et al.(Craft).

As per claim 1, Boucher teaches a method of processing a network connection in a computer system(Abstract, Figs.1,2,6), comprising: establishing the network connection by a software network protocol stack implemented in the kernel of an operating system associated with the computer system, wherein the kernel maintains kernel-level connection state information for the network connection, and wherein a socket layer maintains socket layer-level connection state information for the network connection(Figs.1,2,6, para.0018,0430-0433);

determining whether to offload the network connection from the hardware network protocol stack to a software network protocol stack implemented in a TCP Offload Engine (TOE)-capable network interface card operatively connected to the computer system(para.0018),

transferring the network connection from the hardware network protocol stack to the software network protocol stack using a network interface card driver when it is determined to offload the network connection from the hardware network protocol stack to the software network protocol stack(Abstract, Fig.10, 12);

wherein the network interface card maintains hardware-level connection state information for the network connection and wherein after the hardware network protocol stack accepts transfer of the network connection the software network protocol stack is configured to continually reference hardware-level connection state information and the hardware network protocol stack is configured to continually reference kernel-level connection state information and socket layer-level connection state information(Figs.22,23,para.0068).

Boucher does not explicitly teach, offloading from a software stack to a hardware stack and determining to accept the transfer of the network connection at the software network protocol stack based on a processing capability of the hardware network protocol stack.

Craft teaches offloading from a software stack to a hardware stack and determining to accept the transfer of the network connection at the software network protocol stack based on a processing capability of the hardware network protocol stack(Fig.5,6 col.3, lines 1-21).

Therefore it would have been obvious to one ordinary skill in the art at the time of the invention to modify the teachings of Boucher to include offloading from a software stack to a hardware stack and determining to accept the transfer of the network

connection at the software network protocol stack based on a processing capability of the hardware network protocol stack as taught by Craft in order to offload the most time consuming protocol processing from a host CPU to a specialized device(Craft, col.2, lines 23-40).

One ordinary skill in the art would have been motivated to combine the teachings of Boucher and Craft in order to offload the most time consuming protocol processing from a host CPU to a specialized device(Craft, col.2, lines 23-40).

As per claim 2, the method as recited in claim 1, wherein transferring the network connection from the software network protocol stack to the hardware network protocol stack using the network interface card driver comprises:

obtaining, by the network interface card driver for the software network protocol stack, a hardware connection identifier maintained by the network interface card in association with hardware-level connection state information for the network connection, wherein the software network protocol stack is configured to use the hardware connection identifier to obtain hardware-level connection state information for the network connection(Boucher, para.0018, Craft, col.4, lines 16-64); and

obtaining, by the network interface card driver for the hardware network protocol stack, a reference to socket layer-level connection state information and a reference to kernel- level connection state information, wherein the hardware network protocol stack is configured to use the references to create mappings from the hardware connection identifier to both socket laver-level connection state information and kernel-level connection state information, wherein the hardware network protocol stack is further

configured to use the mappings to obtain kernel-level connection state information and socket laver-level connection state information for the network connection(Boucher, para.0018, Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 3, the method as recited in claim 1, wherein determining whether to offload the network connection is performed by the operating system kernel of the computer system(Boucher, Fig.1,2,6,9-11 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 4, the method as recited in claim 3, wherein determining whether to offload the network connection is performed by the socket layer of the operating system kernel(Boucher, Fig.1,2,6,9-11 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 5, the method as recited in claim 1, wherein determining whether to offload the network connection is performed by the software_network protocol stack(Boucher, Fig.1,2,6,9-11 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 9, the method as recited in claim 1, wherein the hardware network protocol stack is capable of determining whether to offload the network connection back to the software network protocol stack(Boucher, Fig.1,2,6,9-11, para.0070 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 10, the method as recited in claim 9, further comprising:

receiving an indicator from the hardware network protocol stack, the indicator indicating a request to transfer the network connection back to the software network protocol

stack(Boucher, Fig.1,2,6,9-11, para.0070,0092-0094 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 11, the method as recited in claim 10, further comprising: obtaining the hardware-level connection state information for the network connection from the hardware network protocol stack using the network interface card driver and the hardware connection identifier for the network connection when the indicator is received; and handling the network connection by the software network protocol stack using the obtained hardware-level connection state information(Boucher, Fig.1,2,6,9-11, para.0070,0092-0094 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 13, the method as recited in claim 11, further comprising: obtaining at least one of unsent and undelivered data by the software network protocol stack from the hardware network protocol stack thereby enabling the software network protocol stack to process the unsent or undelivered data(Boucher, Fig.1,2,6,9-11, para.0070,0092-0094 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 17, the method as recited in claim 9, further comprising: handling the network connection by the software network protocol stack after the network connection is offloaded back to the software network protocol stack from the hardware network protocol stack(Boucher, Fig.1,2,6,9-11, para.0070,0092-0094).

As per claim 19, the method as recited in claim 1, further comprising: handling the network connection by the software network protocol stack until it is

determined to offload the network connection to the hardware network protocol stack(Boucher, Figs.1,2,6,9-11,para.0009-0013 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 24, the method as recited in claim 1, wherein the kernel-level connection state information comprises IP addresses and ports for a client and server of the network connection, and at least one of send and receive sequence numbers of one or more packets for the network connection(Boucher, Figs.1,2,6,9-11, para.0018 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 28, the method as recited in claim 1, wherein upon transferring the network connection from the software network protocol stack to the hardware network protocol stack, the method further comprising: sending one or more inbound packets by the hardware network protocol stack to the socket layer using the network interface card driver and receiving one or more outbound packets by the hardware network protocol stack from the socket layer using the network interface card driver, wherein the network interface card driver maintains a copy of each packet until the packet reaches its intended destination(Boucher, para.0146, 0265-0266, para.0504 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claim 57, the method as recited in claim 1, wherein the network interface card driver is configured to maintain a copy of kernel-level connection state information and a copy of socket layer-level connection state information after the hardware network protocol stack accepts transfer of the network connection(Boucher, para.0146, 0265-0266, para.0504 Craft, col.4, lines 16-64). Motivation to combine set forth in claim 1.

As per claims 30-33, 36-38, 40, 45, 47, 52,56,58, do not teach or further define over the limitations in claims 1-5,9-11,13,17,19,24,28,57. Therefore claims 30-33, 36-38, 40, 45, 47, 52,56,58 are rejected for the same reasons set forth above.

Claims 25,26,53,54 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2004/0064589 issued to Boucher et al.(Boucher) in view of US Patent 6,697,868 issued to Craft et al.(Craft) in further view of US Patent 6,622,172 issued to Tam.

Boucher in view of Craft teaches all the limitations of claim 24 and 52, however does not explicitly teach as per claims 25,53, wherein the state information further comprises: a round trip estimate.

Tam teaches wherein the state information further comprises: a round trip estimate(col.10, lines 17-44).

Therefore it would have been obvious to one ordinary skill in the art at the time of the invention to modify the teachings of Boucher in view of Craft to include a round trip estimate as taught by Tam in order to avoid delays of transmission or congestion in a network(Tam, col.7, lines 17-31).

One ordinary skill in the art at the time of the invention would have been motivated to combine the teachings of Boucher, Craft, and Tam in order to provide a system to reduce bursty transmission of network connections between computers in a network(Tam, col.7, lines 27-30).

As per claims 26,54, wherein the state information further comprises: a congestion window and slow start information(Tam, col.7, lines 17-31). Motivation to combine set forth in claim 25.

Response to Arguments

Applicant's arguments with respect to claim1-5, 9-11,13,17,19, 24-26, 28, 30-33, 36-38, 40, 45, 47, 52-54,56-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching of all or part of the claimed invention.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Backhean Tiv whose telephone number is (571) 272-5654. The examiner can normally be reached on M-F 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Backhean Tiv/
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12/15/08

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